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John R. Doner

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BEUSSE WOLTER SANKS MORA & MAIRE, P. A.
390 NORTH ORANGE AVENUE
SUITE 2500
ORLANDO, FL 32801

EXAMINER

HUNG, YUBIN

ART UNIT

PAPER NUMBER

2624

DATE MAILED: 08/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/007,333

Applicant(s)

DONER, JOHN R.

Examiner

Yubin Hung

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 8-13 and 15-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8-13 and 15-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment/Arguments

1. This action is in response to amendment filed May 01, 2006, which has been entered.
2. Claims 5-7 and 14 have been cancelled. Claims 1-4, 8-13 and 15-20 are still pending.
3. Applicant's amendment has rendered moot the 35 USC § 103 rejections of claims 1-4, 8-13 and 15-20. However, upon further consideration, new grounds of rejection are made in view of Aratow et al. (US 6,199,008).
4. Applicant's arguments filed 05/01/06 have been fully considered but they are not persuasive; see below.

5. In remarks Applicant argued in substance:

- 5.1 *that merely stating the references are in the same field of endeavor does not satisfy the prima face test. (P. 11, 5th paragraph, last two lines)*

However, in all cases a motivation to combine is given in a separate paragraph following the one regarding the same field of endeavor. Therefore the argument is not persuasive.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jaisimha et al.

("Data Compression Techniques for Maps," IEEE Proceedings, 1989 SoutheastCon, pp. 878-883), in view of Aratow et al. (US 6,199,008) and Mairs et al. (US 6,304,928).

8. Regarding claim 1, Jaisimha discloses

- (d) scanning the pixels line by line; (e) assigning a first instruction to a plurality of successive pixels depicting the image background, wherein the first instruction indicates the number of successive background pixels
[P. 880, the section entitled "Run-length encoding." Note that the run-length code for the largest homogeneous region (considered as the background) is considered as the first instruction]

Jaisimha does not expressly disclose

- (a) creating the graphical image data for a geographical region
- (b) determining a projected vehicle path
- (c) eliminating from the graphical image those pixels more than a predetermined distance from the path
- (f) assigning a second instruction to a plurality of successive data pixels, wherein the second instruction comprises a first bit field indicating the number of successive colored data pixels, and comprises a second bit field for each colored data pixel, wherein contents of the second bit field indicate the color of the associated colored data pixel, and wherein the second bit field can specify any of the n colors for each one of the plurality of successive data pixels, and wherein a length of the second instruction is variable as determined by the number of successive colored data pixels and the number of bits required to designate one of the n different colors for each colored data pixel

However, Aratow discloses, for a flight path over a terrain, displaying its corresponding weather data. [Col. 2, lines 11-15; note that since a display has a known resolution and size, once a flight path is selected and where it is to be placed in the display (e.g., in the center) is determined, the portion of its corresponding weather map that can be displayed is also determined (implying eliminating other portions). I.e., the distance from the flight path is determined (or predetermined, in the sense that the display resolution, size and placement of the flight path have all been pre-determined). See also Figs. 5A-5I, Col. 6, line 10-Col. 7, line 47 and Col. 9, lines 40-63.] In addition, Mairs teaches coding a run of color pixels using a format (i.e., instruction) that satisfies the limitations of the second instruction recited above. [Figs. 24A-24C and 25; Col. 16, line 24-Col. 18, line 15. Note that the format for color image in Table 1 includes a first bit field indicating the run length and a second, multi-byte bit field that contains the colors of the pixels in the run (packed two pixels to a byte because in this instance each color is described by a 4-bit value, see Col. 16, lines 21-24).]

Jaisimha, Aratow and Meirs are combinable because they all have aspects that are from the same field of endeavor of data compression/decompression or processing of geometrical data.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Jaisimha with the teaching of Aratow and Mairs by acquiring a graphical

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image in the recited manner and coding the non-background color runs using the color image format of Mairs. The motivation would have been to be able to provide a pilot with visualization information (as Aratow indicates in Col. 1, line 66-Col. 2, line 3) as well as to more efficiently encode (i.e., using fewer bits) the kind of map images in which most of the non-background data are sparse (e.g., consisting of blobs of only a few pixels in size or of runs in each of which the pixels have different colors).

Therefore, it would have been obvious to combine Aratow and Mairs with Jaisimha to obtain the invention as specified in claim 1.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jaisimha et al. ("Data Compression Techniques for Maps," IEEE Proceedings, 1989 SoutheastCon, pp. 878-883) Aratow et al. (US 6,199,008) and Mairs et al. (US 6,304,928) as applied to claim 1 above, and further in view of Matsushiro (US 6,301,300).

Regarding claim 2, the combined invention of Jaisimha, Aratow and Meirs discloses all limitations of its parent, claim 1.

The combined invention of Jaisimha, Aratow and Meirs does not expressly disclose the following:

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- (c1) determining the number of successive lines comprising only background pixels
- (c2) assigning a third instruction representing the number of successive lines determined at step (b1)
- (c3) determining the number of successive background pixels less than one line in length
- (c4) assigning a fourth instruction representing the number of successive background pixels determined at the step (b3)

However, in [Figs. 1A, 1B; Col. 3, line 57 – Col. 4, line 5] Matsushiro teaches determining the number of background-only lines (i.e., white lines) and assigning a code (OFFSET, i.e., the third instruction) representing that number.

In addition, Matsushiro teaches determining runs that are shorter than a line and assigning to each run its start and end positions (i.e., the fourth instruction *representing* the number of successive pixels). Although the runs Matsushiro considers are data runs, not the background runs as recited in the claim, it would have been obvious to one of ordinary skill in the art that for a line containing both data and background pixels, whether it is the data runs or background runs are encoded is a matter of design choice. Applicant has not disclosed that encoding background runs provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with encoding data runs instead because except when data pixels are at both the beginning and the end of a line, the number of data runs in that line is no greater than the number of background runs.

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The combined invention of Jaisimha, Aratow and Meirs is combinable with Matsushiro because they both have aspects that are from the same field of endeavor of data compression/decompression.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Jaisimha, Aratow and Meirs with the teachings of Matsushiro by counting the number of successive all-background lines and the lengths of runs in a mixed line (i.e., a line with both data and background pixels) and assign different instructions to each. The motivation would have been to further improve the coding efficiency by not having to allocate code for each all-background line.

Therefore, it would have been obvious to combine Matsushiro with Jaisimha, Aratow and Meirs to obtain the invention as specified in claim 2.

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jaisimha et al. ("Data Compression Techniques for Maps," IEEE Proceedings, 1989 SoutheastCon, pp. 878-883), Aratow et al. (US 6,199,008), Mairs et al. (US 6,304,928) and Matsushiro (US 6,301,300) as applied to claim 2 above, and further in view of Imade et al. (US 5,872,864).

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Regarding claim 3, the combined invention of Jaisimha, Aratow, Meirs and Matsushiro discloses all limitations of its parent, claim 2.

The combined invention of Jaisimha, Aratow, Meirs and Matsushiro does not expressly disclose the following:

- determining the number of background pixels between two data pixels in a single line of pixels
- assigning a fifth instruction if the number of successive background pixels is less than a predetermined value
- assigning a sixth instruction if the number of successive background pixels is greater than the predetermined value

However, Imade discloses identifying short white (considered as background) runs and replacing their color with that of the data (black). [See Col. 17, lines 59-66.] The replacement is considered the fifth instruction. Note that after all short run background runs are replaced, the remaining background runs are all longer than the predetermined value and therefore the first instruction now is equivalent to the sixth instruction.

Note that whether a separate sixth instruction is assigned is obviously a design choice since at this point the a background run assigned a first instruction must have a length greater than a predetermined value, exactly what the sixth instruction is to convey. Therefore, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to use only the first instruction. Applicant has not disclosed that using a separate sixth instruction provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the

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first instruction alone because both instructions perform the same function of describing a background run that is longer than a predetermined number.

Imade and the combined invention of Jaisimha, Aratow, Meirs and Matsushiro are combinable because they both have aspects that are from the same field of endeavor of image processing.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Jaisimha, Aratow, Meirs and Matsushiro with the teachings of Imade by identifying short white (background) runs and replacing their color with black, the color of data (with the replacement being considered the fifth instruction) as well as assigning a sixth instruction to the remaining background runs (i.e., those background runs with a length greater than a predetermined value). The motivation would have been to smooth the image by removing speckles of background pixels (white pixels) to enhance the visual effect as well as to improve compression results.

Therefore, it would have been obvious to combine Imade with Jaisimha, Aratow, Meirs and Matsushiro to obtain the invention as specified in claim 3.

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11. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jaisimha et al. ("Data Compression Techniques for Maps," IEEE Proceedings, 1989 SoutheastCon, pp. 878-883), Aratow et al. (US 6,199,008), Mairs et al. (US 6,304,928), Matsushiro (US 6,301,300) and Imade et al. (US 5,872,864) as applied to claim 3 above, and further in view of Tateyama (US 5,515,077).

Regarding claim 4, the combined invention of Jaisimha, Aratow, Meirs, Matsushiro and Imade discloses all limitations of its parent, claim 3.

The combined invention of Jaisimha, Aratow, Meirs, Matsushiro and Imade does not expressly disclose

- the predetermined value is 64, and wherein the fifth instruction comprises an eight bit byte, and wherein the first and the second bits identify the instruction type and the third through the eighth bits identify the number of successive background pixels, and wherein the sixth instruction comprises two eight bit bytes, and wherein the first and the second bits identify the instruction type and the third through the sixteenth bits identify the number of successive background pixels

However, Tateyama discloses data formats (either 1 or 2 bytes long) consisting of two fields of different bit lengths with one indicating the mode (considered as instruction type) and the other the run length. [See Fig. 32.] Note that the number of bits allocated to run length determines the size of the pre-determined value. (E.g., in 16-color mode, 4 bits are allocated to run length and the predetermined value is therefore 16.)

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Moreover, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have a pre-determined value of 64 (i.e., 6 bits) and to allocate two bits to the instruction type (i.e., mode). Applicant has not disclosed that using such allocation (of 2 bits and 6 bits) provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either the bit allocation taught by Tateyama or the claimed bit allocation because both allocations perform the same function of specifying the instruction type (i.e., mode) and the length of the run.

Tateyama and the combined invention of Jaisimha, Aratow, Meirs, Matsushiro and Imade are combinable because they both have aspects that are from the same field of endeavor of image processing.

Therefore, it would have been obvious to of ordinary skill in this art to modify Tateyama with the 2-bit/6-bit allocation to obtain the invention as specified in claim 4.

12. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jaisimha et al. ("Data Compression Techniques for Maps," IEEE Proceedings, 1989 SoutheastCon, pp. 878-883) Aratow et al. (US 6,199,008) and Mairs et al. (US 6,304,928) as applied to claim 1 above, and further in view of Cullen et al. (US 5,781,665).

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Regarding claim 8, the combined invention of Jaisimha and Meirs discloses all limitations of its parent, claim 1.

The combined invention of Jaisimha and Meirs does not expressly disclose the following:

- reducing the graphical image size by deleting those pixels in one or more predetermined areas

However, Cullen discloses a method of cropping out predetermined areas of an image. [Fig. 1.

Note that the non-facial areas are the predetermined areas.]

Cullen and the combined invention of Jaisimha and Meirs are combinable because they both have aspects that are from the same field of endeavor of data compression/decompression.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Jaisimha and Meirs with the teachings of Cullen by cropping out predetermined areas of an image. The motivation would have been to remove unimportant areas of the images in order to reduce their sizes. (See Tables III and IV in Cols. 6 and 7, respectively of Cullen.).

Therefore, it would have been obvious to combine Cullen with Jaisimha and Meirs to obtain the invention as specified in claim 8.

13. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jaisimha et al. ("Data Compression Techniques for Maps," IEEE Proceedings, 1989 SoutheastCon, pp. 878-883), Aratow et al. (US 6,199,008) and Mairs et al. (US 6,304,928) as applied to claim 1 above, and further in view of Kelly (US 6,448,922).

14. Regarding claim 9, the combined invention of Jaisimha and Meirs discloses all limitations of its parent, claim 1.

The combined invention of Jaisimha and Meirs does not expressly disclose the following:

- the graphical image represents radar weather data

However, Kelly discloses on-board radar that acquires weather images. [Fig. 4A. Col. 5, lines 47-60.]

Kelly and the combined invention of Jaisimha and Meirs are combinable because they both have aspects that are from the same field of endeavor of image processing.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Jaisimha and Meirs with the teachings of Kelly by acquiring radar weather images. The motivation would have been to provide information for the all-important task of Weather forecasting.

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Therefore, it would have been obvious to combine Kelly with Jaisimha and Meirs to obtain the invention as specified in claim 9.

15. Regarding claim 10, Kelly further discloses

- wherein the radar weather data comprises precipitation data, and wherein the precipitation intensity is indicated by the color assigned to each data pixel
[Col. 3, lines 54-58; Col. 5, lines 47-60]

16. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jaisimha et al. ("Data Compression Techniques for Maps," IEEE Proceedings, 1989 SoutheastCon, pp. 878-883), Aratow et al. (US 6,199,008) and Mairs et al. (US 6,304,928) as applied to claim 1 above, and further in view of Imade et al. (US 5,872,864).

17. Regarding claim 11, the combined invention of Jaisimha and Meirs discloses all limitations of its parent, claim 1.

The combined invention of Jaisimha and Meirs does not expressly disclose the following:

- determining the number of successive data pixels in each plurality of data pixels, and if the number is less than a predetermined number in one or more of the plurality of data pixels, changing the color of each data pixel in the one or more of the plurality of data pixels to the background color

However, Imade discloses identifying short white (considered as data) runs and replacing their color with that of the background (black). [Col. 17, lines 59-66.]

Imade and the combined invention of Jaisimha and Meirs are combinable because they both have aspects that are from the same field of endeavor of image processing.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Jaisimha and Meirs with the teachings of Imade by identifying short white (i.e., data) runs and replacing their color with that of the background. The motivation would have been to smooth the image by removing speckles of data pixels (white pixels) to enhance the visual effect as well as to improve compression results.

Therefore, it would have been obvious to combine Imade with Jaisimha and Meirs to obtain the invention as specified in claim 11.

18. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jaisimha et al. ("Data Compression Techniques for Maps," IEEE Proceedings, 1989 SoutheastCon, pp. 878-883), Aratow et al. (US 6,199,008) and Mairs et al. (US 6,304,928) as applied to claim 1 above, and further in view of Ozaki et al. (US 5,345,316).

19. Regarding claim 12, the combined invention of Jaisimha and Meirs discloses all limitations of its parent, claim 1.

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The combined invention of Jaisimha, Aratow and Meirs does not expressly disclose the following:

- assigning a line designator to one or more of the lines of pixels

However, Ozaki discloses adding an End-of-Line code (i.e., a line designator) to an encoded line.

[See Col. 7, lines 13-18.]

Ozaki and the combined invention of Jaisimha, Aratow and Meirs are combinable because they both have aspects that are from the same field of endeavor of image processing.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Jaisimha, Aratow and Meirs with the teachings of Ozaki by adding an End-of-Line code (i.e., a line designator) to an encoded line. The motivation would have been to be able to display an image properly after decoding.

Therefore, it would have been obvious to combine Ozaki with Jaisimha, Aratow and Meirs to obtain the invention as specified in claim 12.

20. Claims 13, 15, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jaisimha et al. ("Data Compression Techniques for Maps," IEEE Proceedings, 1989 SoutheastCon, pp. 878-883), Aratow et al. (US 6,199,008), Mairs et al. (US 6,304,928) and Matsushiro (US 6,301,300) (as applied to claim 2), and further in view of Cullen et al. (US

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5,781,665), Imade et al. (US 5,872,864), Kelly et al. (US 6,448,922) and Katayama et al. (US 6,836,564).

21. Regarding claim 13, it is similarly analyzed and rejected as per the analyses of claims 1, 2, 5, and 8-11.

Specifically, the combined invention of Jaisimha, Aratow, Meirs and Matsushiro disclose/teach

- (a) associating the graphical weather image with a map of the geographical area, wherein the map includes geographical area boundaries [Per the analysis of claim 1. See also Aratow: Fig. 5A1 (geographical map with boundaries)]
- (c) scanning the pixels line by line [Per the analysis of claim 1]
- (e) assigning a first instruction representing the number of successive lines composed entirely of background pixels [Per the analysis of claim 2. Note that the first instruction here corresponds to the third instruction of claim 2]
- (f) determining the number of successive background pixels in a line [Per the analysis of claim 2]
- (g) assigning a second instruction representing the number of successive background pixels in a line [Per the analysis of claim 2. Note that the second instruction here corresponds to the fourth instruction of claim 2]
- (h) assigning a third instruction representing the number of successive data pixels in a line, wherein the third instruction comprises a first field representing the number successive data pixels and comprises a second field representing the color from the n different colors, of each successive data pixel, and wherein the second bit field can specify any of the n colors for each one of the plurality of successive data pixels, and wherein a length of the second instruction is variable as determined by the number of successive colored data pixels and the number of bits required to designate one of the n different colors for each colored data pixel [Per the analysis of claims 1 and 5. Note that the third instruction here corresponds to the second instruction of claim 1]
- (j) concatenating the first, second and third instructions to form the bit stream [Per the analysis of claim 5. Note that it is obvious to concatenate all instructions to produce the encoded data]

Cullen, Imade and Kelly disclose/teach

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- wherein the graphical weather image comprises a plurality of pixels for display, and wherein the plurality of pixels comprise background pixels all of a background color for depicting the image background and data pixels each having one of a plurality different colors, and wherein the data pixel color represents the precipitation intensity
[Per the analyses of claims 9 and 10]
- (b) deleting background and data pixels from predetermined areas of the image
[Per the analysis of claim 8]
- (d) identifying data pixel segments within a line of pixels, wherein a data pixel segment comprises a plurality of successive data pixels, and wherein if there are less than a predetermined number of data pixels within the data pixel segment, changing the color of each data pixel within the data pixel segment to the background color
[Per the analysis of claim 11]

and Katayama further discloses/teaches

- (RE (h)) wherein the geographical area boundaries, the background pixels and the data pixels are of different colors
[Figs. 2A & 2B; Col. 3, lines 34-54]
- (i) change the color of the geographical area boundaries to a color of the background pixels
[Figs. 1B & 2A-2C; Col. 3, lines 34-54. Note that while Katayama discloses changing the color of the background to that of the road (similar in characteristics as a boundary and is considered as such) it surrounds, it would have been obvious to one of ordinary skill in the art to do the converse, i.e., change the color of the road (or, boundary) to that of its surrounding background to obtain the same result of better compression. See also Col. 9, lines 10-22]

Cullen, Imade, Kelly and Katayama are combinable with the combined invention of Jaisimha, Aratow, Meirs and Matsushiro because they all have aspects that are from the same field of endeavor of image processing.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Jaisimha, Aratow, Meirs and Matsushiro with the teachings of Cullen, Imade, Kelly and Katayama by deleting data from predetermined portion, identifying short white (i.e., data) runs and replacing their color with that of the

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background, as well as replacing the color of the boundaries with that of the background. The motivation would have been to reduce the image size as well as to enhance the visual effect and to improve compression results, as Katayama indicates in column 9, lines 10-22.

Therefore, it would have been obvious to combine Cullen, Imade, Kelly and Katayama with Jaisimha, Aratow, Meirs and Matsushiro, to obtain the invention as specified in claim 13.

22. Regarding claim 15, it is rejected because the combined invention of Jaisimha, Aratow, Meirs and Matsushiro and Imade further teach/suggest

- determining whether the number of successive background pixels in a line is greater than a predetermined value; assigning the second instruction to represent the number of background pixels in the line when the number of successive background pixels is less than the predetermined value; and assigning a fourth instruction to represent the number of background pixels in the line when the number of successive background pixels is greater than the predetermined value
[Per the analysis of claim 3]

23. Regarding claim 17, it is rejected because it is a method for decoding the data stream resulting from the encoding method of claim 13 obtained by reversing the encoding operations and is therefore obvious. **Additionally, Aratow further discloses overlaying one image over another [Col. 6, lines 49-56].**

24. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jaisimha et al. ("Data Compression Techniques for Maps," IEEE Proceedings, 1989 SoutheastCon, pp. 878-883), Aratow et al. (US 6,199,008), Mairs et al. (US 6,304,928) and Matsushiro (US 6,301,300) (as applied to claim 2), Cullen et al. (US 5,781,665), Imade et al. (US 5,872,864), Kelly et al. (US 6,448,922) and Katayama et al. (US 6,836,564) as applied to claims 13, 15 and 17, and further in view of Ozaki et al. (US 5,345,316).

Regarding claim 16, the combined invention of Jaisimha, Aratow, Meirs, Matsushiro, Cullen, Imade, Kelly and Katayama discloses all limitations of its parent, claim 13.

The combined invention of Jaisimha, Aratow, Meirs, Matsushiro, Cullen, Imade, Kelly and Katayama does not expressly disclose the step of appending a line designator to the bit stream at the end of one or more pixel display lines.

However, per the analysis of claim 12 Ozaki teaches this limitation.

The combined invention of Jaisimha, Aratow, Meirs, Matsushiro, Cullen, Imade, Kelly and Katayama are combinable with Ozaki because they both have aspects that are from the same field of endeavor of image processing.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Jaisimha, Aratow, Meirs, Matsushiro, Cullen, Imade, Kelly and Katayama with the teachings of Ozaki by adding an End-of-Line code (i.e., a line designator) to an encoded line. The motivation would have been to be able to display an image properly after decoding.

Therefore, it would have been obvious to combine Ozaki with Jaisimha, Aratow, Meirs, Matsushiro, Cullen, Imade, Kelly and Katayama to obtain the invention as specified in claim 16.

25. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jaisimha et al. ("Data Compression Techniques for Maps," IEEE Proceedings, 1989 SoutheastCon, pp. 878-883), Aratow et al. (US 6,199,008), Mairs et al. (US 6,304,928) and Matsushiro (US 6,301,300) (as applied to claim 2), Cullen et al. (US 5,781,665), Imade et al. (US 5,872,864), Kelly et al. (US 6,448,922) and Katayama et al. (US 6,836,564) (as applied to claims 13, 15 and 17), and further in view of Wendt (US 4,422,180).

Regarding claim 18, the combined invention of Jaisimha, Aratow, Meirs, Matsushiro, Cullen, Imade, Kelly and Katayama discloses

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- a module for creating the graphical weather image and for eliminating from the graphical weather image those pixels more than a predetermined distance from a projected path of the aircraft for producing a modified graphical weather image
[Per the analysis of claim 1]
- a data compressor for receiving data bits representing the pixels comprising the graphical weather image and for producing a compressed data bit stream by compressing the data bits according to the number of successive pixels of the background color and for successive pixels of the information color according to a first bit group indicating the number of successive pixels of an information color and a second bit group indicating the information color from the plurality of information colors of each pixel indicated by the first bit group, and wherein the second bit field can specify any of the plurality of information colors for each one of the successive data pixels, and wherein a length of the first bit group plus the second bit group is variable as determined by the number of successive pixels of an information color and the number of bits required to designate one of the plurality of information colors for each pixel of an information color
[Per the analyses of claims 1 and 13]
- a data decompressor for decompressing the recovered compressed bit stream for producing the recovered data bits representing the pixels comprising the modified geographical weather image, by determining the number of successive pixels of the background color and the color for each pixel of an information color from the plurality of information colors
[Per the analysis of claim 17]

The combined invention of Jaisimha, Aratow, Meirs, Matsushiro, Cullen, Imade, Kelly and

Katayama does not expressly disclose

- a carrier signal
- a modulator for modulating the carrier signal with the compressed bit stream
- a transmitter for transmitting the modulated carrier signal
- a receiver in the aircraft for receiving the modulated carrier signal
- demodulator responsive to the received modulated carrier signal for recovering the compressed bit stream
- a display responsive to the recovered data bits for displaying the pixels comprising the graphical weather image

However, Wendt discloses a signal transmitting apparatus particularly for aircraft that includes a transmitter, a receiver, a modulator, a demodulator and a display. [See Figs., 6 & 8, Col. 8, line 61 through Col. 9, line 30 and Col. 11, lines 9-10.]

The combined invention of Jaisimha, Aratow, Meirs, Matsushiro, Cullen, Imade, Kelly and Katayama are combinable with Wendt because they both have aspects that are from the same field of endeavor of data encoding/decoding.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Jaisimha, Aratow, Meirs, Matsushiro, Cullen, Imade, Kelly and Katayama with the teachings of Wendt by including a transmitter, a receiver, a modulator, a demodulator and a display. The motivation would have been to be able to communicate critical information to an aircraft and display the decoded information for the pilots to facilitate proper decision-making.

Therefore, it would have been obvious to combine Wendt with Jaisimha, Aratow, Meirs, Matsushiro, Cullen, Imade, Kelly and Katayama to obtain the invention as specified in claim 18.

26. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jaisimha et al. ("Data Compression Techniques for Maps," IEEE Proceedings, 1989 SoutheastCon, pp. 878-883), Aratow et al. (US 6,199,008), Mairs et al. (US 6,304,928) and Matsushiro (US 6,301,300) (as applied to claim 2), Cullen et al. (US 5,781,665), Imade et al. (US 5,872,864), Kelly et al. (US 6,448,922), Katayama et al. (US 6,836,564) and Wendt (US 4,422,180) as applied to claim 18, and further in view of Marey et al. (US 3,916,436).

Regarding claim 19, the combined invention of Jaisimha, Aratow, Meirs, Matsushiro, Cullen, Imade, Kelly, Katayama and Wendt discloses all limitations of its parent, claim 18.

The combined invention of Jaisimha, Aratow, Meirs, Matsushiro, Cullen, Imade, Kelly, Katayama and Wendt does not expressly disclose

- wherein the transmitter is a television picture signal transmitter, and wherein the carrier signal is the carrier signal of the television picture, and wherein the television picture comprises an information interval during which picture information is transmitted and a vertical blanking interval during which no information is transmitted, and wherein the compressed data bit stream modulates the carrier signal during the vertical blanking interval

However, Corey discloses a TV signal transmitting apparatus that modulates the carrier only during vertical blanking period. [See the last seven lines of the abstract.]

The combined invention of Jaisimha, Aratow, Meirs, Matsushiro, Cullen, Imade, Kelly, Katayama and Wendt are combinable with Marey because they both have aspects that are from the same field of endeavor of data encoding/decoding.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Jaisimha, Aratow, Meirs, Matsushiro, Cullen, Imade, Kelly, Katayama and Wendt with the teachings of Marey by including a transmitter, a receiver, a modulator, a demodulator and a display. The motivation would have been to be able to

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communicate critical information to an aircraft and display the decoded information for the pilots to facilitate proper decision-making.

Therefore, it would have been obvious to combine Marey with Jaisimha, Aratow, Meirs, Matsushiro, Cullen, Imade, Kelly, Katayama and Wendt to obtain the invention as specified in claim 19.

27. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jaisimha et al. ("Data Compression Techniques for Maps," IEEE Proceedings, 1989 SoutheastCon, pp. 878-883), Aratow et al. (US 6,199,008), Mairs et al. (US 6,304,928) and Matsushiro (US 6,301,300) (as applied to claim 2), Cullen et al. (US 5,781,665), Imade et al. (US 5,872,864), Kelly et al. (US 6,448,922), Katayama et al. (US 6,836,564) and Wendt (US 4,422,180) as applied to claim 18, and further in view of Waguri (US 6,370,278).

Regarding claim 19, the combined invention of Jaisimha, Aratow, Meirs, Matsushiro, Cullen, Imade, Kelly, Katayama and Wendt discloses all limitations of its parent, claim 18.

The combined invention of Jaisimha, Aratow, Meirs, Matsushiro, Cullen, Imade, Kelly, Katayama and Wendt does not expressly disclose

- wherein the display further comprises a stored image of the geographical boundaries of the modified graphical weather image, and wherein the geographical boundaries are displayed with the pixel display of the graphical weather image

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However, Waguri discloses extracting boundary information and subsequently superimposing boundary information on another image. [See Abstract.]

The combined invention of Jaisimha, Aratow, Meirs, Matsushiro, Cullen, Imade, Kelly, Katayama and Wendt are combinable with Waguri because they both have aspects that are from the same field of endeavor of data encoding/decoding.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Jaisimha, Aratow, Meirs, Matsushiro, Cullen, Imade, Kelly, Katayama and Wendt with the teachings of Waguri by extracting boundary information and superimposing boundary information on another image (such as a weather map) for display. The motivation would have been to be able to preserve information necessary to reconstruct the boundaries of data (say, with background) which may otherwise be lost if the images has to be encoded for efficient transmission. [See Waguri, Col. 1, lines 10-22.]

Therefore, it would have been obvious to combine Waguri with Jaisimha, Aratow, Meirs, Matsushiro, Cullen, Imade, Kelly, Katayama and Wendt to obtain the invention as specified in claim 20.

Conclusion and Contact Information

28. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yubin Hung whose telephone number is (571) 272-7451. The examiner can normally be reached on 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Yubin Hung
Patent Examiner
Art Unit 2624
August 24, 2006



JINGGE WU
PRIMARY EXAMINER